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SOME OBSERVATIONS ON THE VALUE OF DIBROMOPROPAMIDINE-SULPHATHIAZOLE IN LATENT UDDER INFECTIONS WITH HAEMOLYTIC *STAPHYLOCOCCUS AUREUS*

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Outbreaks of acute staphylococcal mastitis appear to be comparatively rare, although latent udder infections with this type of organism are quite common. Minett (1937) recorded the presence of *Staphylococcus aureus* in the milk of 145 (34·9 per cent.) of 415 cows examined in five herds. McDiarmid (1947) found that the cumulative results of six examinations of a herd of 39 cows showed 64·1 per cent. to be infected with *Staphylococcus aureus*. Stableforth (1950) during the examination of 48 herds in 1947 found 8 per cent. of the cows to be infected with haemolytic staphylococci. In this same examination 1,749 cows were involved and of the 8 per cent. so infected only 15 per cent. showed abnormal milk (Stableforth, 1948).

The herd used in this experiment was one in which acute staphylococcal mastitis had caused serious economic loss. In the two and a half years prior to February, 1949, nine cows out of a herd of 26 developed acute staphylococcal mastitis and were a total loss as milk producers; three of these affected animals died. The animals, Red Polls, were housed in a well-constructed, hygienic shippon and were milked by machine. This herd was brought to our notice in April, 1947. One cow, "Perfect," was affected with mastitis on May 3rd and a coagulase positive haemolytic staphylococcus and *Str. agalactiae* were recovered from the milk; this cow survived but was eventually slaughtered on account of the loss of the udder. Of 14 other cows in milk in the herd, four were found to harbour the same organisms, one yielded haemolytic staphylococci only, one haemolytic staphylococci and Group C. streptococci (*Str. zooepidemicus*), two yielded *Str. agalactiae* only and six were negative. A number of the samples yielded non-haemolytic coagulase negative staphylococci, which were considered unimportant and were ignored. The same criteria have been observed in subsequent examinations, except that in one instance a non-haemolytic staphylococcus gave a positive coagulase reaction.

Twelve weeks later samples were examined from 16 milking cows, when five yielded haemolytic coagulase positive staphylococci and *Str. agalactiae*, one coagulase positive haemolytic staphylococci and *Str. dysgalactiae*, three coagulase positive haemolytic staphylococci alone, two *Str. agalactiae* alone and five were negative.

Although streptococci were demonstrated in approximately half the samples so far examined, the incidence of streptococcal mastitis was not high.

The farmer's veterinary surgeon administered penicillin to seven cows in August and 14 cows in September.

TABLE I

RESULTS OF EXAMINATIONS BEFORE AND AFTER PENICILLIN TREATMENT

Name of cow	3.5.47	26.7.47	7.8.47	13.8.47	2.9.47	11.9.47
Twinkle	HS	HS		—	P	N
Treacle	N	N		—	P	N
Zava	A	N	P	N	P	N
Model	HS.A	HS.A		—	P	N
Sally	HS.A	HS.A	P	N	P	Hs.OS
Tiny	N	N		—	P	N
Mulberry	HS.A	—	P	N	P	F
Thrift	N	A		—	P	N
Apple-blossom	HS.A	HS.A	P	N		Dry
Flossie	N	N		—	P	N
Tuppence	HS.C	HS	P	N	P	C
Peace	A	N		—	P	N
Anita	N	HS.D		Dry		Dry
Dolly	N	HS	P	N	P (9.9.47)	G
Alice	—	HS.A		—		—
Twostep	—	HS.A		—	P	N
Herbaceous	—	A	P	HS	P	N
Perfect	HS.A (Clinical case)	—		—		—

Key:

HS = Haem. *Staph. aureus*.
A = *Str. agalactiae*.
C = *Str. zooepidemicus* (animal pyogenes).
D = *Str. dysgalactiae*.
OS = Streptococci unidentified.
F = N.H. *Staph. aureus* (C + ve)
G = *C. pyogenes*.
N = No pathogenic organisms.
P = Treatment with penicillin.
— = No examination.

Subsequent tests of the milk suggested that, in many cases, infections had been overcome, but examinations of samples during the latter months of 1947 and in 1948 showed the re-establishment of the infection in many of the cows. Five clinical cases developed during this time; of these, two died and the other three were sent for slaughter.

FIRST EXPERIMENT

Messrs. May & Baker suggested that dibromopropamidine isethionate might be of value and kindly provided a supply for the experiment. It was supplied in 6 c.c. tubes containing 4 per cent. of the active drug in oil-wax suspension, the contents of one tube being injected into the teat of each quarter once or twice daily, after milking.

A pre-treatment examination of quarter samples of each cow in milk was carried out on 12.1.49 and according to the results the herd was divided into three groups:—

(1) Five cows to serve as controls.
(2) Four cows for treatment once daily for four days.
(3) Three cows for treatment twice daily for four days.

Unfortunately, owing to some damage to the package containing the drug, a number of the tubes were unfit for use and two of the cows in Group (2), "Sally" and "Treacle" (treatment once daily), could be treated for two days only.

Method of Sampling and Examination.—After thorough washing of the udder and swabbing of the teat orifices with surgical spirit, strip cup samples were taken followed by quarter samples drawn directly into universal containers.

Pre-treatment samples were allowed to stand at room temperature overnight and inoculated the following morning on to (1) surface blood (ox) agar, (2) thallium acetate glucose broth, a 2 mm. loopful of cream being used. Tube coagulase tests were carried out on all haemolytic staphylococcus cultures; these were positive in all cases in this experiment. Slide tests were also carried out and as the same results were obtained this method was later adopted as routine in place of the tube test. Throughout this experiment tests were frequently carried out on non-haemolytic staphylococcal colonies; these invariably gave negative results.

In the pre-treatment examination two of the cows, "Marian" and "Twinkle," were not in milk, but when treatment was commenced both had calved and were milking and were included in the control group. Treatment

TABLE II

RESULTS OF MILK EXAMINATIONS BEFORE AND AFTER DIBROMOPROPAMIDINE TREATMENT

	12.1.49		7.2.49		8.2.49		9.2.49		10.2.49		16.2.49		24.2.49		3.3.49	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Group 1:																
Queen	++	++	++	—	++	—	++	—	—	—	+	—	+	—	—	—
Two-step	++	—	++	—	—	—	++	—	+++	—	++	++	++	++	—	—
Peace	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Marian	Dry		++	+	++	—	—	++	++	++	—	+++	+++	++	+	—
Twinkle	Dry		—	+	—	—	—	—	—	—	—	—	—	—	—	—
	Pre-treatment		After one infusion		After two infusions		After three infusions		After four infusions							
Group 2:																
Sally	+	—	—	—	—	—	—	—	+	—	+++	—	+++	—	—	+++
Treacle	++	+	—	—	—	—	—	—	—	—	—	—	+	—	1	—
Herbaceous	—	++	+	—	—	—	—	—	—	—	—	—	—	—	—	—
Colchicum	+++	—	++	—	—	—	—	—	1	—	+++	—	+	—	+	—
	"Sally" and "Treacle" received no treatment on third and fourth days.															
	Pre-treatment		After two infusions		After four infusions		After six infusions		After eight infusions							
Group 3:																
Appleblossom	+++	—	++	—	—	—	—	—	—	—	—	—	1	—	+	—
Mulberry	+++	+	—	++	—	—	—	—	—	—	—	+++	1	+++	—	—
Flossie	—	++	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	"Mulberry" treated with "Sulphusol" between February 16th and 24th.															
	" " Penicillin " February 24th and March 3rd.															
	" " "Sulphusol" " March 24th and 31st.															
Group 4:																
Thrift	Dry															
	10.3.49		17.3.49		24.3.49		31.3.49		7.4.49		21.4.49		28.4.49		12.5.49	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Group 1:																
Queen	+++	—	—	—	1	—	++	—	++	—	—	—	1	—	++	—
Two-step	—	—	—	—	—	—	+	—	1	—	++	—	—	—	+	—
Peace	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Marian	—	—	—	—	+++	—	+	—	+	—	—	++	—	++	—	++
Twinkle	—	—	—	—	++	—	+	—	—	—	—	—	—	—	—	—
Group 2:																
Sally	—	—	—	—	—	++	+	+++	+	—	+++	+++	+	++	1	—
Treacle	+	—	+	—	++	—	—	—	+	—	++	—	+++	—	1	—
Herbaceous	—	—	Dry													
Colchicum	—	—	1	—	++	—	++	—	+	—	+	—	++	—	+++	—
Group 3:																
Appleblossom	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mulberry	—	++	—	—	—	++	—	—	—	—	—	—	—	—	—	—
Flossie	—	—	—	—	—	—	—	—	—	—	—	—	—	—	++	—
Group 4:																
Thrift			Dry		++	—	—	+++	—	—	—	++	+	++	++	++

Key to Table II

Group 1—Controls
Group 2—Treatment once daily
Group 3—Treatment twice daily
Group 4—Cow not included in experiment

A—Haemolytic *Staph. aureus*
B—Streptococci

— = No infection
1 = One single colony
+ = Very few colonies
++ = Several colonies
+++ = Marked infection

was started on February 6th, 1949, following the afternoon milking. Cows in Group 3 were injected immediately after the afternoon and morning milkings; those in Group 2 after the afternoon milking only.

Samples were collected after the first, second, third and fourth days' treatment to observe the day-to-day effect. Thereafter they were collected usually at weekly intervals. All samples were collected immediately before the afternoon milking.

The results up to May 12th, 1949, are shown in Table II. In every case quarter samples were examined, but for brevity the results are shown in this table on the basis of bulk samples, the maximum amount of infection in any one quarter being regarded as the degree of infection present in the bulk sample, *e.g.*, a cow showing a + + + infection in one quarter without any infection in the other three quarters is recorded as + + +. This, unfortunately, does not indicate the number of quarters infected, but lack of space renders such abbreviations necessary.

During treatment observations were made on the effect of the drug on the lactating udder; only two changes were noted:—

1. After the first day's treatment clots were present in the milk from four cows. These clots continued but decreased during treatment until after the fourth day's treatment they had either disappeared or were quite insignificant. The majority of the clots were in the fore milk. At no stage of the experiment were the clots of such consequence as to make the milk unfit for use.

2. In a few cases during treatment the milk appeared to be " greasy."

Summary of Results

Treatment Once Daily Group.—Treatment immediately reduced the infection of haemolytic staphylococci; after two days' treatment practically no infection was demonstrated.

After treatment either (*a*) re-infection readily took place, or (*b*) pockets of infection in the udder continued to discharge organisms into the milk, such organisms during treatment having been destroyed by the presence of the drug, *e.g.*, " Sally " L.F. 16.2.49 showed a + + + infection and " Colchicum " (three-teated cow) showed a + + + infection in all three quarters.

Treatment Twice Daily Group.—Treatment immediately reduced the infection of haemolytic *Staphylococcus aureus;* after two days' treatment no infection was demonstrated.

Following treatment the animals remained almost free from haemolytic staphylococcal infection.

A streptococcal mastitis developed in " Mulberry " on February 24th which responded to treatment with penicillin.

Control Group.—Two cows, " Queen " and " Two-step," in this group were excreting staphylococci at the beginning of the experiment and continued to do so intermittently during the four months under review. Another animal, " Marian," which was dry at the commencement of the experiment and was included in this group, yielded haemolytic staphylococci which appeared to be suppressed by a streptococcal infection in three quarters on 16.2.49.

It was noticed that haemolytic staphylococci were not obtained regularly from infected quarters on consecutive days; such findings have been observed by Stableforth (Stableforth, 1950).

Discussion and Conclusions

1. Dibromopropamidine had a marked bactericidal effect on staphylococci, particularly coagulase positive haemolytic *Staphylococcus aureus* in latent infections in the bovine udder.

2. Treatment once daily for four days appeared to clear the infection but its effect was only temporary and in some cases infection was re-established within a week of the cessation of treatment.

3. Treatment twice daily for four days cleared the infection and appeared to have a lasting effect.

4. Dibromopropamidine did not produce any local or generalised effects during treatment.

SECOND EXPERIMENT

During the eight examinations of milk samples between March 10th and May 12th, 1949, the gradual re-establishment of the staphylococcal infection was noted in the group which had received treatment once daily. The cows in the control group continued to show the infection irregularly, although " Peace " never showed any infection throughout the experiment.

In Table III the results of these examinations (10.3.49 to 12.5.49 inclusive) are summarised.

Table III

Summary of Examinations—March 10th to May 12th, 1949

Group in first experiment	Name	Number of times organisms were present in eight examinations	
		Haemolytic staphylococci	Streptococci
Control	Queen	6	0
"	Two-step	4	0
"	Peace	0	0
"	Marian	3	3
"	Twinkle	2	0
Once daily for four days	Sally	5	4
"	Treacle	7	0
"	Herbaceous	0 (dry after first examination)	0
"	Colchicum	7	0
Twice daily for four days	Apple-blossom	0	0
"	Mulberry	0	2
"	Flossie	1	0
Dry	Thrift	3 (examined six times)	4

As the haemolytic staphylococcus infection was being demonstrated fairly regularly in certain cows in the examinations on April 21st, April 28th and May 12th, it was decided to treat these animals with dibromopropamidine *cum* sulphathiazole (DBP/ST), especially as some were going dry.

Carmichael (1950) has shown that the activity of dibromopropamidine is greatly reduced in the presence of milk, but when combined with sulphathiazole in the ratio DBP : ST = 4 : 1 its action was enhanced. In view of this the drugs were supplied in 6 c.c. tubes containing DBP 4 per cent. and ST 1 per cent. in oil wax suspension. The use of the drugs and method of milk examinations were as in the first experiment.

Commencing May 15th, " Two-step " and " Treacle " were each given one infusion per quarter daily for four consecutive days. These cows were being milked only once daily as they were drying off.

" Sally," " Thrift," " Colchicum " and " Marian " were each given infusions twice daily for two days.

" Marian " was included as she showed the presence of a streptococcal infection in the three previous examinations.

" Queen " was left as a control as she was undoubtedly one of the most regular sources of infection. Other cows kept under observation as controls were:—" Peace," " Twinkle," " Appleblossom," " Mulberry " and " Flossie." " Flossie " showed the presence of infection in the R.F. quarter on May 12th for the first time in 21 examinations over the period May 3rd, 1947, to May 12th, 1949. No treatment was given and on May 19th only a trace of infection was evident. She cleared completely by May 26th and has remained free ever since. Similarly " Peace " remained free from infection throughout the whole experiment, except on one sampling in August, 1948. No treatment was given, the infection clearing spontaneously and she remained clear until October, 1949, when she was fattened as she was barren. It would appear that these two cows were resistant to this type of infection, but such an immunity definitely was not the result of a clinical attack of the disease.

The results of examinations following the treatment are set out in Table IV.

carried the infection over to her next lactation. She was treated once daily for four days commencing June 3rd, 1949. " Twinkle " was treated twice daily on June 11th and 12th as she showed infection on June 9th.

During these treatments with DBP/ST close observations were made for any untoward effects on either the cows or the milk. The following effects were noted:—

1. During treatment there was a marked greasiness and clotting of the milk; so much so, that some of it was unfit for bulking for retailing. The milk returned to normal two to three days after treatment had ceased.

2. No systemic disturbance nor local reaction in the udder was observed in any of the animals treated.

The criterion of the efficacy of this treatment was regarded as freedom from infection during the following lactation. All the cows therefore were examined at frequent intervals up to the time of going dry (see Table IV) and then again at intervals after calving (see Table V).

Results during this period for cows treated with DBP only (in first experiment) are also shown in Table V.

TABLE IV

MILK EXAMINATIONS AFTER TREATMENT WITH DIBROMOPROPAMIDINE-SULPHATHIAZOLE TO TIME OF COWS DRYING OFF

		19.5.49		26.5.49		2.6.49		9.6.49		16.6.49		30.6.49		6.7.49		21.7.49		19.8.49		22.9.49		6.10.49	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Two-step	DS	—	—	+	—	—	—	Dry															
Treacle	DS	—	—	—	—	—	—	Dry										—	—	—	—	+	—
Sally	DS	—	—	+	—	DS	—	—	—	—	—	—	—	—	—	Dry							
Thrift	DS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	+	Dry	
Colchicum	DS	+	+	—	+	—	—	+	+	—	DS	—	—	Dry									
Marian	DS	—	—	—	—	—	—	—	—	+	—	DS	—	—	—	—	—	—	—	Dry			
Queen		+	—	+	—	+	—	DS	—	—	—	Dry											
Peace		—	—	—	—	Dry																	
Twinkle		—	—	—	—	—	—	+	—	DS	—	—	—	—	—	—	—	—	—	—	—	—	—
Appleblossom		—	—	—	—	Dry										—	—	—	—	—	—	+	+
																						Summer mastitis	
Mulberry		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Dry					
Flossie		1	—	—	—	—	—	—	—	—	—	—	—	—	—	Dry							

For Key—See Table II. DS = Treatment with dibromopropamidine-sulphathiazole.
In the above examinations quarter samples were examined but the results are given as bulk samples.

" Sally " was given a further course of treatment in the L.F. quarter on May 28th and 29th as some infection remained on May 26th.

The treatment completely cleared the streptococcal infection in " Marian," but on June 28th and 29th she was given further treatment on account of a few haemolytic staphylococci in the samples collected on June 16th and a single sample on June 23rd.

The treatment failed to clear the infection in " Colchicum " and on June 9th a heavy growth was obtained from the L.H. quarter. She was retreated (once daily for four days) from June 11th and on June 16th her milk was sterile.

On October 6th and 13th, 1949, " Treacle " showed the presence of infection in the L.F. quarter and was treated with DBP/ST (all quarters) on 28.10.49. Thereafter she remained free from infection in seven examinations over a period of six months.

As we wished to eradicate the infection it was considered undesirable to keep control animals any longer. Furthermore, " Queen " was drying off and she may have

SUMMARY OF RESULTS

As will be seen, the six cows which calved following treatment remained free from haemolytic staphylococcal infection in the lactation following treatment. " Treacle " was the only cow which had not started a fresh lactation since her last treatment, but following her re-treatment on 28.10.49 (*vide supra*) she remained clear up to going dry six months later and it appeared probable that her next lactation would show results comparable with the other cows.

" Appleblossom " developed a *C. pyogenes/Str. dysgalactiae* mastitis two months after calving. She had apparently been freed completely of the staphylococcal infection by DBP alone.

" Two-step " was sold as her milk yield was always rather low and she was considered to be uneconomical.

The streptococcal infections have not been cleared as successfully as the staphylococcal; nevertheless, they show a reduced incidence (compare Tables III and V); also the number of clinical cases of streptococcal mastitis has fallen to negligible proportions. The infection in " Flossie " was associated with a severe injury.

TABLE V

RESULTS OF EXAMINATIONS DURING LACTATION FOLLOWING TREATMENT WITH DBP/ST

Name of cow	Date of calving (approx.)	Number of examinations to 24.4.50	Number of times infection demonstrated	
			Haem. staphylococci	Streptococci
Treacle*	19.8.49	13	2	0
Queen	20.9.49	12	0	0
Sally	9.11.49	8	0	1 (*agalactiae*)
Colchicum	1.12.49	6	0	1 (*dysgalactiae*)
Twinkle	26.12.49	5	0	0
Marian	7.1.50	4	0	4 (*uberis*)
Thrift	2.2.50	3	0	1 (*dysgalactiae*)
Two-step	Sold			
Results of examinations during lactation following treatment with DBP only				
Apple-blossom	14.7.49	Developed summer mastitis soon after calving		
Herbaceous	10.8.49	14	0	0
Mulberry	10.11.49	8	0	0
Flossie	4.12.49	6	0	1 (*uberis*—associated with injury)
Peace	Sold			

* Treated during lactation

In 29 months previous to treatment with DBP there had been nine clinical cases of acute staphylococcal mastitis. During 19 months since treatment there has not been a case.

Coincident with the reduction and elimination of staphylococcal infection there was a marked increase in milk yield. Figures for nine cows are shown in Table VI. The 1950 milk yields would be expected to be somewhat higher than in 1948 as most of the cows were then in their second lactation. Nevertheless, "Herbaceous," who is (1950) in her sixth lactation, shows a very marked increase over her fourth lactation.

TABLE VI

COMPARATIVE MILK YIELDS FOR NINE COWS FOR 1948, 1949 AND 1950

The number of days given are the unfinished lactations to May 15th, 1950. For comparison, the yields for the same number of days are given for 1948 and 1949. In 1948 all cows were in their second lactation except "Herbaceous" and "Flossie," who were both in their fourth lactation.

Name of animal	Number of days	Number of gallons 1948	1949	1950
Twinkle ...	128	436	605	577
Thrift	103	483	291	445
Herbaceous ...	278	576	746	782
Mulberry ...	186	410	492	706
Treacle	238	641	642	550
Sally	177	405	489	691
Queen	226	435	425	510
Colchicum ...	160	427	556	658
Flossie	151	429	376	437
	1,647	4,242	4,622	5,356
Average ...	183	471	514	595

SUMMARY

Two experiments are recorded in which latent haemolytic *Staphylococcus aureus* udder infections in cows were controlled. In the first experiment dibromopropamidine alone was used and results obtained from its application twice daily for four days were encouraging.

In the second experiment dibromopropamidine with sulphathiazole was used and the results indicate that the infection was controlled completely. In the 29 months prior to treatment there were nine acute clinical cases; in the 19 months following treatment no cases occurred. Coincident with the elimination of latent infection an increase in milk yield was observed.

Acknowledgments.—I wish to thank Messrs. May & Baker for their suggestions and help in making this experiment possible; I am indebted also to Mr. T. Gubb (deceased) and Miss P. Magner for their assistance in the collection and examination of the milk samples.

REFERENCES

MINETT, F. C. (1937.) *J. comp. Path.* **50.** 112.
MCDIARMID, A. (1947.) *Vet. Rec.* **59.** 12.
STABLEFORTH, A. W. (1950.) *Ibid.* **62.** 219.
———. (1948.) *Journal of the Farmers' Club.* Part 4.
CARMICHAEL, J., MACLAY, M. H., JOHNSON, A. V., & JOHNSON, L. (1950.) *Vet. Rec.* **62.** 56.

DOMESTIC POULTRY KEEPERS' COUNCIL

Addressing the first meeting of the reconstituted Domestic Poultry Keepers' Council, which was held on May 10th, Lord Macpherson, the Chairman, said that the Council's task was to promote the formation of the future organisation of domestic poultry keepers. As the Area offices were being closed down it was now essential to keep the voluntary side of the movement going until the new organisation was ready to take over.

The Council recommended that as the first step the existing domestic poultry clubs should form themselves into County (and where desired, County Borough) Federations of D.P.K. Clubs, and that these federations should appoint officers, including an organising secretary, who would be able to maintain contact with the Council. This would have a twofold advantage, firstly to keep clubs together and to allow the work to continue without a break, and secondly, it would be the basis on which the independent organisation could be formed. Hitherto the Area offices had played a large part in supplying guidance and advice to domestic poultry keepers by way of lectures and talks and dealing with enquiries and requests for information. After the Area offices closed down this service would be continued by the local education authorities, who had been asked to supplement the activities of their own education staffs by utilising the service of the many voluntary lecturers and advisers who had served the needs of the domestic poultry keeper in the past. County Federations would make known their requirements direct to their County Education Officer A programme of representative meetings had been arranged in all areas, and the Secretary to the Council, Mr. A. J. Edney, would address these meetings and outline the proposals for the independent organisation. County Federations would have a direct link with the Council via their organising secretaries, whose travelling expenses and postages would be at the outset met by the Ministry. County Federations would need funds to carry on their work and the Council suggested that members of clubs might pay an annual affiliation fee of 1s. per member of which 6d. would be retained by the County Federation for working expenses and 6d. would be remitted to pay the expenses of a central organisation. The Council suggested that some Government financial aid would be necessary at the outset to supplement the income from affiliation fees received by County Federations and would make application accordingly through the National Council for Domestic Food Production.

The Domestic Poultry Keepers' Council has representation on the National Council for Domestic Food Production, and Lord Macpherson and Mr. Powell-Owen have been nominated to represent the interests of domestic poultry keepers. This representation will pass to the new independent body as soon as it is formed.

The Council at subsequent meetings will consider proposals to encourage domestic poultry keepers to join clubs, noting that only about 10 per cent. of the present D.P.K.s were actually club members. The next meeting of the Council was arranged for June 15th, 1951.

TECHNIQUE AND USE OF LIVER BIOPSY IN CATTLE

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VETERINARY LABORATORY, MINISTRY OF AGRICULTURE, WEYBRIDGE, SURREY

The method to be described has been used as a routine procedure in this laboratory during the last 18 months. It should be emphasised that it is merely a modification of the method described by Dick (1944) for sheep, but since there have been so many requests for the details of this operation and since we feel that it has certain advantages over the method recently described by Garner (1950), it is now thought worth reporting. We would like to acknowledge some suggestions regarding the site of the operation made by Dr. I. J. Cunningham (1949) during a visit to this laboratory.

Instruments.—These are essentially the same as those described by Dick (1944) for sheep. The stainless steel trochar is 18 cm. in length and 4 mm. in diameter, with the end ground to a conical point. The canula is a thin stainless steel tube of 5 mm. external diameter and 4 mm. bore, one end of which is bevelled down to a fine cutting edge, so that it forms a continuation of the conical point of the trochar. The other end is adapted for attaching the syringe, which is a 20 ml. " record " type with a nozzle to fit the adapter on the canula. Dick found that one hole, drilled near the base of the stem of the plunger to take a pin which will hold it when pulled out against atmospheric pressure, was sufficient, but we have found that if the piston fits very well the core of liver may be carried up into the syringe when the plunger is extended fully. Therefore we have three holes bored in the stem of the plunger so that the distance it is withdrawn can be varied as necessary. Fig. 1 shows the trochar, canula and syringe used.

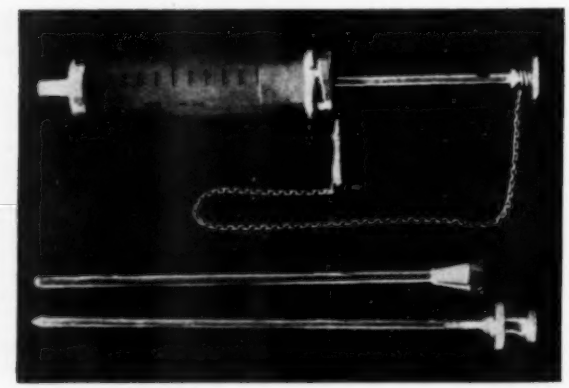

FIG. 1.—The instruments.

Restraint of Animal.—The animal is secured against a gate or horizontal bars with the right side facing the operator. An udder kinch is taken over the top bar and held by one man, who usually stands against the hind quarters of the animal to give additional control. Should the animal show any tendency to fall, it may thus be released immediately. The head may be secured by a halter to the supports if the operator wishes, but in any case a second assistant should hold the nose or head and keep the shoulders of the animal against the gate. Fig. 2 shows the position and method of restraint. With range animals unaccustomed to handling it would probably be necessary to use a crush.

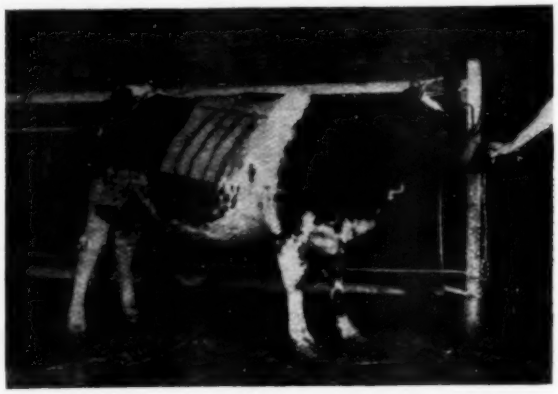

FIG. 2.—Method of restraint.

Site.—After a preliminary exploratory operation under general pentothal anaesthesia it was found that the best point of entry was in the second to last intercostal space on the right side of the animal, *i.e.*, between the eleventh and 12th ribs, from 6 inches to 8 inches from the dorsal mid-line according to the age and size of the animal. This is illustrated in Figs. 3 and 4. When a 14th floating rib is present the site is in the third last intercostal space.

FIG. 3.—Inserting the stilette.

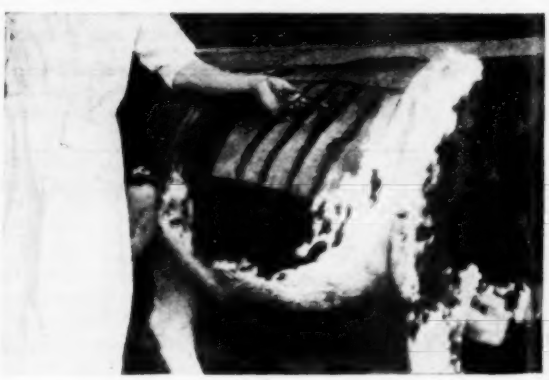

FIG. 4.—Final position of instrument, with plunger withdrawn.

Anaesthesia.—Paravertebral anaesthesia was tried but gave erratic results. Local infiltration of procaine hydrochloride (2 per cent. solution) was found to be the quickest, most reliable and economical method. After anaesthetising the skin, the deeper layers are infiltrated with 5 or 6 ml. procaine, using a 5 cm. by 1·2 mm. needle.

Operation

The skin is incised for about ½ inch, parallel to the ribs. The stilette (trochar and canula) is then introduced, pushing through the intercostal muscles in a slightly forward direction. Some controlled force may be necessary at this stage, but if the anaesthesia is satisfactory no response is shown by the animal. The nature of the resistance indicates when the point of the trochar passes through the peritoneum and into the liver. This sensation can be learned by performing the operation on a dead animal. As soon as the point enters the liver the trochar is withdrawn and the canula pushed gently into the tissue for 1 to 2 inches with a rotating movement. The syringe is then attached to the canula, the plunger pulled out, and the pin inserted at the appropriate hole in the stem to provide sufficient suction to hold the core of liver when it is withdrawn. The tissue is then expelled into a beaker of normal saline by pushing down the plunger. Sometimes it cannot be expelled easily in this way, and it becomes necessary to disconnect the syringe and push out the core with the trochar. After separating the liver tissue from any adhering blood clot and drying on a piece of filter paper, the sample can either be weighed for analysis or transferred to a fixative for histological examination. The wound is dressed with an antiseptic powder immediately after operation and no further treatment is necessary.

The size of core usually obtained measures from 3 to 5 cm. in length and the average wet weight is about 0·4 g. (see Fig. 5).

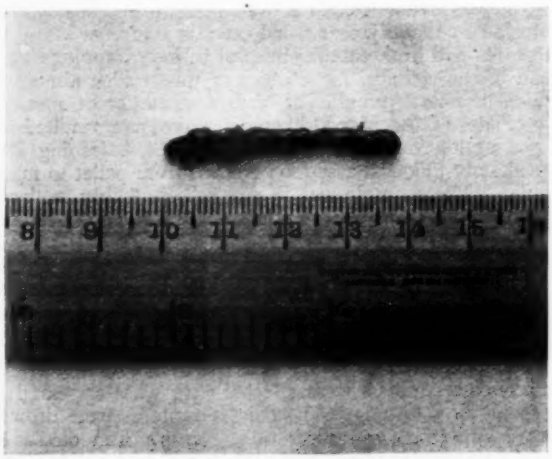

Fig. V.—A typical core of liver tissue obtained by this method.

Several cores may be taken from an animal through the same hole in the abdominal wall at any one time without harmful results. In this way samples of liver tissue up to 1·5 g. can be obtained. The operation can be repeated at frequent intervals if necessary and has been performed on pregnant animals at all stages of gestation without harmful effects.

In a few cases where the animal has been slaughtered a few days after the operation, no haemorrhage into the peritoneal cavity, nor adhesion of the liver to the abdominal wall, was observed. Haemorrhagic tracks up to 6 inches long have been demonstrated in the liver substance, but all damage was localised to these tracks, and fibrosis was commencing.

The essential difference between this technique and that used by Dick for sheep is that in cattle the stilette does not traverse the pleural cavity to reach the liver. This is a great advantage and makes the operation much simpler than that for sheep. The whole operation lasts only about 15 minutes and most of this time is taken up in securing the animal and giving the local anaesthetic. On one occasion 12 animals were done in two and a half hours.

The advantage of this method over that of Garner (1950) lies in the fact that the site of puncture is farther forward, a thicker part of the liver is penetrated, and, as the normal animal stands, the instrument is unlikely to come out on the posterior surface of the liver. The use of a wider bore canula makes the obtaining of a whole core, rather than fragments, almost a certainty.

We have found the standing position preferable to a recumbent one in that displacement of the liver by full stomachs is not so marked.

This technique has been used during the last 18 months mainly in connection with observations on the copper status of bovines. We agree with Cunningham (1946) that liver copper figures give the most reliable index of the copper status of an animal. Although for field work blood samples generally give an adequate indication of copper status, supplementary data are desirable for laboratory observations. During the last year 102 liver biopsy samples have been taken from bovines varying in age from three months to several years. The following selection of data gives some idea of the correlation of blood and liver copper values. The figures for liver were obtained on biopsy samples, blood samples being taken at the time of the operation.

Blood and Liver Copper Values. Liver Samples Obtained at Biopsy

Animal	Date	Blood mg. per 100	Liver p.p.m. on D.M.
1316	17.11.48	0·09	128
	30.10.49	0·10	35
	22.2.50	0·09	19
	19.6.50	0·10	24
	11.10.50	0·07	23
	18.6.49	0.09	49
1317	22.2.50	0·10	22
	19.6.50	0·10	15
	11.10.50	0·05	18
1318	27.6.49	0·09	123
	14.3.50	0·11	23
	30.5.50	0·10	23
	11.10.50	0·09	20
1319	27.6.49	0·08	38
	22.2.50	0·11	17
	30.5.50	0·10	17
	11.10.50	0·04	19
1320	27.6.49	0·09	51
	22.2.50	0·12	36
	19.6.50	0·10	18
	11.10.50	0·05	17
Mayqueen ...	30.11.50	0·07	67
Fieldmarshal ...	"	0·08	172
Ginger	"	0·06	69
Jill	"	0·07	84
Babette	"	0·06	172

(*Table concluded overleaf*)

Animal	Date	Blood mg. per 100	Liver p.p.m. on D.M.
1665	18.11.49	0·03	7
1666	,,	0·03	11
1667	,,	0·03	10
1668	,,	0·03	6
1881	1.12.50	0·04	7
1879	,,	0·04	8
1883	,,	0·03	6

These figures suggest that the liver is a more reliable index of copper status than the blood. It is true that, in general, very low blood values such as 0·02 to 0·04 mg. per cent. (whole blood) are associated with low liver figures—usually below 20 p.p.m. (dry basis)—but it will be noted from the figures above the blood values from 0·04 mg. per cent. upwards do not necessarily give any indication of liver reserves. Blood figures of 0·08 to 0·12 mg. per cent. are generally regarded as normal and may be associated with liver D.M. figures of several hundred p.p.m., but the selected data show a blood value as high as 0·11 associated with a liver value as low as 17, and a blood figure as low as 0·06 associated with a liver figure as high as 172.

References

Cunningham, I. J. (1946.) *N.Z. J. Sci. Tech.* **27.** Sect. A, p. 381.
———. (1949.) Personal communication.
Dick, A. T. (1944.) *Aust. Vet. J.* **20.** 298.
Garner, R. J. (1950.) *Vet. Rec.* **62.** 729.

CLINICAL COMMUNICATION

FOXGLOVE (*DIGITALIS PURPUREA*) POISONING IN TURKEYS

W. H. PARKER,

Veterinary Investigation Officer, Wolverhampton

The common foxglove (*Digitalis purpurea*) is known to be toxic, but poisoning of birds by this plant does not appear to have been recorded. It was, therefore, decided to publish this account of losses in turkeys. The condition occurred in the late autumn in a mixed flock of 100 American Mammoth Bronze and Austrian White turkeys housed in a clover ley adjoining a wood. The house was situated about 300 yards from the dividing hedge and the birds had free range. They were all female turkeys, seven months of age, and were being reared for stock purposes. At the time of release one morning in November, two-thirds of the flock (68 birds) were observed to be ill and one died within a few minutes. This turkey was examined at the laboratory. Bacteriological examination was entirely negative. The only abnormality discovered in the body cavity was an oiliness of the interior of the small intestine. Enquiry elicited that cod-liver oil was being added to the mash at not less than 2½ per cent., and this was thought to be the cause of oil in the intestine. The crop was rather full, although no food could have been consumed for over 12 hours before death. When the crop was opened it was found to contain, in addition to mash, a considerable quantity of greenstuff, mostly clover and foxglove leaves.

Four further birds, which died the next day, were opened with similar findings. The leaf contents of two crops were separated from the mash and submitted to Mr. A. J. Cavell, of the N.A.A.S. He reported that microscopic examination of pieces of leaf confirmed that it was foxglove and returned the following measurements:—

	Crop 1 (grammes)	Crop 2 (grammes)
Foxglove	6·1	22·0
Clovers, etc.	73·0	41·6
Total weight	79·1	63·6
Percentage Foxglove ...	7·7	34·6

Symptoms.—The symptoms characteristic of all the affected turkeys were drowsiness, inappetence and stasis of the crop, which, though full, was not impacted in many cases. Drinking almost ceased. Pupils were dilated. Convulsions were observed immediately prior to death.

After the first death there was a lapse of time before further deaths occurred and it was 40 hours after access to the wood had ceased before foxglove poisoning was confirmed. Though the birds did not feed during this period, the crops were still distended.

Treatment.—The owner surgically removed the crop contents of all affected birds two days after the last opportunity for access to foxglove. Following the operation the turkeys were kept at a warm temperature, about 75° to 80° F., for two days, and for the same period were given warm milk to drink, and mash made sloppy by a generous admixture of milk. Eighteen cracked eggs were included in the mash to assist its passage over the wounded area. Tea, magnesium sulphate and alcoholic stimulants were all given following the operation, but probably had little effect.

Sequelae.—There was a marked improvement the day after the crop contents were removed and on the second day many of the birds had completely recovered from drowsiness and were feeding normally. Only three of the treated birds died. In all, ten turkeys were lost.

Discussion.—No records have been found of any previous case of foxglove poisoning in birds, though opportunities of consuming the plant are plentiful in some areas. In the case under review foxglove was present in considerable profusion in the adjacent wood, and in one area many of the plants had been eaten. Several turkey droppings were found in the vicinity. The cause of this sudden abnormal feeding in a large number of birds is a matter of speculation. The excess of cod-liver oil may have resulted in nausea and a depraved appetite, but the poisoning also immediately followed a sudden change from pellet to mash feeding. The example was in any case probably set by a few and followed by the remainder of the poisoned birds.

Though Lander makes no reference to digitalis poisoning in birds, he records several cases in mammals, chiefly horses. The symptoms quoted by him are somewhat conflicting, but drowsiness, inappetence and dilated pupils are common.

Summary

Sixty-eight turkeys were affected with what appeared to be foxglove poisoning. The chief symptoms were drowsiness, inappetence and stasis of the crop. Ten died. In the remainder recovery quickly followed surgical removal of the crop contents.

Reference

Lander's "Veterinary Toxicology," Third Edition, p. 265.

Weekly Wisdom

Even for those who would not call themselves Christians, "it is in fact the Christian solution to any practical problem that more often than not they instinctively recognise as the right one."—"English Life and Leisure" (Seebohm Rowntree and G. R. Lavers).

ABSTRACT

[The Neuropathologic Diagnosis of Hog Cholera. Helmboldt, C. F. & Jungherr, E. L. (1950.) *Amer. J. vet. Res.*, **11**. 41–49 (48 refs.)]

Histological examination of the brain at five cross-sectional levels was carried out on 124 diseased and normal pigs submitted during eleven years. On the basis of mesodermal reactions consisting of vascular and perivascular infiltrations and also microgliosis, capillary haemorrhage and leptomeningeal infiltrations, the authors diagnosed swine fever in 28 to 31 uncomplicated cases and 12 to 13 cases complicated by bacterial infections. Of 45 pigs affected with other diseases four showed isolated, barely recognisable, vascular infiltrations of no diagnostic importance. Differential diagnosis in relation to Aujeszky's disease, Teschen disease, rabies and listerellosis is discussed. It is considered that these can be ruled out on the basis of anamnesis, bacteriology and animal inoculation tests. The authors note the presence of cell aggregates in the region of the ependyma of the lateral ventricle in a large proportion of normal and affected pigs.

A. V. G.

EXPLOSIONS OF ANAESTHETICS

Recommended Precautions

A memorandum issued by the Ministry of Health (Memo. 191 Med. revised) draws attention to the fact that the risk of igniting an inflammable anaesthetic is tending to rise as the electrical technique advances with increasing use of surgical diathermy. The matter has been under review and it has been thought desirable to revise the previous memorandum 191 Med. in the light of present-day practice.

Dangerous Substances

Ether-air and ether-oxygen.—A rich ether-oxygen mixture is more dangerous than a corresponding ether-air mixture and a very small spark suffices to cause ignition.

Cyclopropane.—This gas in all proportions commonly used is inflammable and is explosive.

Nitrous oxide.—Although this gas is not itself inflammable, mixtures of ether vapour with air or oxygen are made not less, but even more, inflammable if nitrous oxide is added.

Ethyl chloride.—This yields a vapour which forms an explosive mixture with air, and its use is dangerous in proximity to flames or apparatus likely to involve a spark or hot wires.

A.C.E. mixture.—The ordinary A.C.E. mixture may yield an explosive mixture with air and presents dangers if used under certain conditions.

Ethylene-oxygen.—With this mixture the explosion resulting from ignition is very destructive and its use is therefore very rare.

Reduction of Risk

Methods of anaesthesia which are available when explosion risks may be anticipated are: basil narcotics, intravenous anaesthetics, local analgesia, nitrous oxide, chloroform, trichorethylene. These may be used in their usual combinations and with oxygen. Chloroform is, however, not always advisable and if local anaesthesia is impracticable the risk of ether may be minimised by limiting its administration to the induction of anaesthesia. After an interval sufficient to ensure that all ether vapour has been practically eliminated, the use of electrical apparatus is admissible, anaesthesia being maintained with chloroform, trichlorethylene, or nitrous-oxide-oxygen.

Risk of explosion may in general be lessened by the employment of a rigid closed circuit method of administration with carbon dioxide absorption. Under such conditions with a tightly fitting mask there should be no appreciable escape of anaesthetic into the air, but electrical precautions are nevertheless imperative. In cases where the cautery or surgical diathermy is in use in the air-way, decomposition of chloroform or trichlorethylene may occur with the formation of highly toxic products: the use of these agents is therefore undesirable under such conditions. Ether peroxides occasionally form and are explosive. This danger may be reduced by frequent cleaning of the apparatus and the use of fresh ether.

REVIEW

[Toxaemias of Pregnancy, Human and Veterinary. A Ciba Foundation Symposium. xii + 280 pages. Published by J. & A. Churchill Limited, 104, Gloucester Place, London W.1. 21s.]

In January, 1950, a symposium was held under the auspices of the Ciba Foundation which, as the chairman at the opening session explained, was an attempt to integrate the toxaemias of pregnancy of man and other animals. The symposium lasted three days and papers were read and discussed by research workers, from Britain and abroad, who were or had been actively engaged in studying some aspect of the problem. The participants included physiologists, biochemists, pathologists and medical and veterinary specialists. Symposia of this nature are of very great value to those taking part, in facilitating an exchange of ideas and in focusing attention on aspects of the problem where further investigation is most needed, and now, to benefit a much wider circle, the Ciba Foundation have published in book form the 26 papers presented, along with the chairmen's summaries from the veterinary, medical and obstetrical standpoints. It is perhaps to be regretted that the editors have not found it possible to give summaries of the discussions which followed the papers. Nevertheless, the Ciba Foundation are to be congratulated on presenting these papers in a concise and readable form, constituting, as they do, an up-to-date and authoritative review on all aspects of the toxaemias of pregnancy.

There are five papers of veterinary interest dealing with pregnancy toxaemia in sheep, neonatal ataxia of lambs, acetonaemia in cattle, and bovine parturient hypocalcaemia. Short summaries of these papers have already appeared in *The Veterinary Record* (**62**. 65. 1950) and it will therefore suffice to say that they are as interesting to veterinary clinicians as to research workers.

The diversity of the pathological conditions which are classed as toxaemias of pregnancy is well brought out in these proceedings, and it is clear that the conditions met by the veterinarian have a different pathogenesis from those encountered by his medical confrère.

Papers presented informally at a symposium and illustrated with numerous slides frequently require considerable modification before they are acceptable as published papers, and it is pleasing to find that the adaptation has, on the whole, been carried out successfully. It is to be hoped, however, that in future publications of such symposia the editors will standardise the system of giving references and the abbreviations used for journals quoted. While some authors have followed the "World List" abbreviations, others clearly have invented their own and have in some cases not even used these consistently.

The book is well printed and on the whole adequately illustrated.

THIRD COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

The National Association for the Prevention of Tuberculosis announces that the above conference will be held at The Central Hall, Westminster, London, S.W.1.

Lectures and discussions will take place on July 8th, 9th, 10th and the morning of the 11th, 1952, and visits to sanatoria, hospitals and clinics on July 11th, 12th and 13th, 1952.

This early announcement is being made in order to avoid, as far as possible, the annual meetings of the different associations from overlapping during this period.

QUESTIONS IN PARLIAMENT

Slaughterhouses

Mr. Spence (June 4th) asked the Minister of Food whether the seven new slaughterhouses being built by the Government will continue to operate under the complete control of the Government; or whether they are eventually to be handed over to municipal authorities.

Mr. Webb: This will depend on the future policy with regard to slaughtering, about which the Government is at present consulting the various interests concerned. The contracts already signed, however, provide for either possibility.

Mr. Spence asked the Minister of Food the size and potential capacity of the seven new slaughterhouses and two experimental premises.

Mr. Webb: The slaughterhouses to be built at Canterbury, Grimsby, Salisbury and Swindon, the one in the Bournemouth-Poole area and the Guildford experimental slaughterhouse will each have a potential daily slaughtering capacity of about 100 to 110 cattle, or the equivalent in calves, sheep or pigs.

The daily capacity of the slaughterhouse at Sunderland, the one in the Bolton-Leigh-Wigan area and the experimental slaughterhouse at Fareham, will each be between 200 and 250 cattle. There will be ample grazing land and lairage accommodation for the animals before slaughter and sufficient hanging space and chill rooms for the meat.

Mr. Hurd (June 7th) asked the Minister of Food what will be the cost and capacity of each of the nine slaughterhouses now to be erected; and whether they will be owned and operated by his department.

Mr. Webb: The estimated cost is as follows:

Canterbury	£85,000 each
Grimsby	
Salisbury	
Swindon	
Poole and Bournemouth District	
Guildford Experimental Slaughterhouse ...	
Sunderland	£160,000
Bolton, Leigh and Wigan District	£160,000
Fareham Experimental Slaughterhouse	£190,000

These slaughterhouses will be built and owned by the Ministry of Works, but my Department will be responsible for the slaughtering arrangements. I would refer the hon. Member to the reply I gave on June 4th to the hon. Member for Aberdeenshire, West (Mr. Spence), about the capacity of these slaughterhouses.

Mr. Hylton-Foster (June 5th) asked the Minister of Works (1) when it is proposed to begin work upon the extension of the co-operative abattoir in Cemetery Road, York;

(2) when he proposes to release from requisition the slaughterhouse of Messrs. William Wright and Sons (York), Ltd., in Aldwark, Yorkshire.

Mr. G. Brown: The release of the slaughterhouse at Aldwark depends on completion of the extension at Cemetery Road. It is hoped to start building the extension to the Cemetery Road, York, slaughterhouse within three months and to complete it by June, 1952. The slaughterhouse at Aldwark will be derequisitioned immediately the new premises at Cemetery Road are ready for use.

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Agriculture, Scotland (Ministerial Responsibility)

Mr. Thornton-Kemsley (June 4th) asked the Minister of Agriculture over what matters he has jurisdiction in Scotland; under what enactments he receives these powers; and through what offices they are administered.

Mr. T. Williams: I have jurisdiction in Scotland over all matters relating to diseases of animals, and for the payment of subsidy towards the cost of acquiring and transporting lime for use on agricultural land, and I am also responsible for the ordnance survey of Scotland. I derive these powers from the Diseases of Animals Act, 1950, which consolidated previous legislation; Section 97 of the Agriculture Act, 1947, which continued the powers of Section 1 of the Agriculture Act, 1937, in respect of the Agriculture Lime Subsidy: and the Ordnance Survey Act, 1841, as amended and made permanent by the Expiring Laws Act, 1922.

Diseases of animals are dealt with through 19 Divisional Veterinary Offices in Scotland and the Branch Office of the Headquarters Division in Edinburgh. The agricultural lime subsidy is paid from the Ministry's office at St. Annes-on-Sea, and work in the field is covered by a regional technical officer stationed at Edinburgh assisted by three assistant technical officers. The ordnance survey field work in Scotland is administered through a divisional office at Edinburgh.

Gambia Poultry Scheme (Enquiry)

Mr. G. P. Stevens (June 6th) asked the Secretary of State for the Colonies whether he can now announce the name of the person selected to make the enquiry into the Colonial Development Corporation's poultry scheme in the Gambia.

Mr. J. Griffiths: The Lord Chancellor has selected Mr. Gerald Upjohn, C.B.E., K.C., to undertake an enquiry into certain aspects of the Gambia poultry scheme, with the following terms of reference:

(1) To investigate the allegation made by certain members of the Board of the Colonial Development Corporation, as reported in the House of Commons on May 29th, 1951, by the Minister of State for Colonial Affairs, that (contrary to the statement made by Lord Trefgarne in the House of Lords on April 11th, 1951, that all the material information concerning the Corporation's poultry scheme in the Gambia was fully reported to the Board) the Board were not, in fact, fully informed; and for the purpose of his investigation,

(*a*) to examine the documents of the Colonial Development Corporation bearing upon the matter in dispute as defined above, whether or not already publicly cited in support of either of the two conflicting views there expressed; and

(*b*) to examine such witnesses as he may consider are able to give information bearing on the same matter.

(2) To report the results of his investigation to the Lord Chancellor.

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Animal Feedingstuffs

Brigadier Medlicott (June 6th) asked the Minister of Food if he will give an assurance that there are adequate stocks of animal feedingstuffs in hand; and if he will make a statement as to his plans for stockpiling.

Mr. Webb: Existing stocks and supplies in prospect are sufficient to maintain the present ration levels. It would not be in the national interest to make the statement asked for in the second part of the Question.

NOTES AND NEWS

Diary of Events

June 16th.—Meeting of the Biochemical Society in the Department of Physiology, The Medical School, Hospitals Centre, Birmingham, 1.45 p.m.

June 21st.—Summer Meeting of the Herts and Beds Division, N.V.M.A., to be held at Whipsnade. (See notice in later issues of *The Veterinary Record*.)

June 21st.—Summer Meeting of the Herts and Beds Division, N.V.M.A., at Whipsnade. (See Notice.)

June 22nd.—Summer Meeting of the North Wales Division, N.V.M.A., at Llangefni and Bangor. (See Notice.)

June 23rd.—Scottish Metropolitan Division, N.V.M.A., Ladies' Guild. Garden Fête and Sale in aid of the V.V.B.F., at Bush House, Milton Bridge, Midlothian, 2.30 p.m.

Sept. 23rd-29th.—Sixty-ninth Annual General Meeting and Congress of the National Veterinary Medical Association, at Eastbourne.

N.V.M.A. Meetings in Edinburgh

Wednesday, July 11th:
11 a.m. Home Appointments Committee.
2 p.m Organising Committee.
4 p.m. Parliamentary and Public Relations Committee.

Thursday, July 12th:
11 a.m. Veterinary State Medicine Committee.
2 p.m. General Purposes and Finance Committee.

Friday, July 13th:
11 a.m. Council.

R.C.V.S. Examinations

Thursday, June 21st.—M.R.C.V.S. Written Examinations.

Friday, June 22nd.—M.R.C.V.S. Written Examinations.

Royal College of Veterinary Surgeons

PROFESSOR J. G. WRIGHT ELECTED PRESIDENT

HONORARY FELLOWSHIP FOR SIR THOMAS DALLING

His fellow members of the profession will unite with us in congratulating most heartily Professor John George Wright, M.V.Sc., F.R.C.V.S., Professor of Veterinary Surgery in the University of Liverpool, upon his unanimous election as President of the Royal College of Veterinary Surgeons, which took place at a Special Meeting of the Council held at 10, Red Lion Square, London, W.C.1, on Friday, June 8th, 1951. Professor Wright, who was elected to the Vice-Presidency in 1949, succeeds Sir Thomas Dalling, Chief Veterinary Officer of the Ministry of Agriculture and Fisheries, whose two-year reign has benefited the profession in a manner to which high tribute was paid, and has witnessed the conferment upon him of the Knighthood which was so great a source of gratification to his colleagues. All will welcome the bestowal upon Sir Thomas, at the same meeting, of the award of the Honorary Fellowship of the Royal College—a high dignity the significance of which is exemplified by the fact that there are but two other holders of this distinction, which is awarded in recognition of special eminence in Veterinary Science, in Mr. Howard Dawes, C.B.E., who immediately preceded Professor Dalling in the Presidency, and Professor J. Douglas Stewart, Dean of the Faculty of Veterinary Science in the University of Sydney, who in the previous year, 1935, had completed 25 years' tenure of the Chair of Veterinary Science.

We shall deal fully in a later issue with the distinguished career and achievements of the new President, who was first elected to the Council in 1938 and, under the new dispensation, now represents the University of Liverpool upon the Governing Body of the profession. In the meantime, it may be recalled that Professor Wright, who was one of the very few to graduate with First Class Honours in Medicine and Surgery, has pursued his life-long interest —that of surgery and obstetrics, allied to anaesthesia—with great success, first at the London College and then at the Liverpool School, more recently at its Veterinary Field Station at Leahurst, Nelson, Wirral. He was the first recipient, at Edinburgh in 1934, of the Dalrymple-Champneys Cup and Medal, awarded annually at the N.V.M.A. Congress for published work of outstanding merit in scientific research, clinical investigation or public health activities, and in the same year—he being then Professor of Surgery at the Royal Veterinary College—the "Victory" Medal of the Central Veterinary Society.

* * * * *

PERSONAL

THE BIRTHDAY HONOURS

Awards in the Order of the British Empire

In the Birthday Honours conferred by the King and announced on Thursday of last week—the day after we went to press with our last issue—the veterinary profession is represented by four recipients of the O.B.E. in the Order of the British Empire.

Those thus honoured, whom we congratulate most warmly on behalf of their fellow-members of the profession, are engaged in widely different spheres of activity within our ranks and this recognition of their worth will be welcomed by all our readers. They are Mr. Geo. P. Male, M.R.C.V.S., the eminent Reading practitioner, a Past-President of the Royal College, whose retirement from the Council of that body after 32 years' service was recorded in our issue of April 21st; Dr. A. D. McEwen, M.R.C.V.S., F.R.S.E., Senior Principal Scientific Officer to the Animal Diseases Research Association in Scotland, to whose outstanding achievements in the field of veterinary bacteriology reference was made by President Geo. M. Gould in presenting him with the N.V.M.A. Dalrymple-Champneys Cup and Medal at our 1945 Congress; Mr. J. W. Wilson, M.R.C.V.S., Divisional Inspector, Ministry of Agriculture's Animal Health Division, Preston, Lancs., and, in the Colonial Office List, Dr. James Anderson, M.R.C.V.S., Assistant Director of Veterinary Research, Kenya.

We welcome also the Knighthood of the British Empire conferred upon Dr. W. K. Slater, appointed Secretary of the Agricultural Research Council in 1949, and the bestowal of the C.B.E upon Mr. H Twinch, lately Chief Livestock Husbandry Officer, N.A.A.S.

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Births.—MacAllister.—On June 7th, 1951, to Fay, wife of Donald I. MacAllister, Broadstone, Stranraer, a son.

Warde.—On June 6th, 1951, at the Royal Berks Hospital, Reading, to Phyllis (*née* Currie), wife of John D. Warde, M.R.C.V.S., of Newbury, a son.

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Marriage.—Parker—Ham.—On May 12th, 1951, at St. Martin's-in-the-Bull Ring, Birmingham, by Canon Brian Green, assisted by the bridegroom's father, William Hosken Parker, M.R.C.V.S., of Wolverhampton, elder son of Rev. J. H. Parker, of Frome, to Elspeth Margaret, only daughter of Mr. P. Sison Ham, of Harborne, Birmingham, and the late Mrs. Ham. Mr. D. J. B. Sutherland, M.R.C.V.S., was best man.

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Conferment of R.C.V.S. Fellowship.—The Fellowship of the Royal College of Veterinary Surgeons has been conferred on Mr. D. E. Faulkner for his thesis—"The improvement of cattle in Kenya with special reference to the Indigenous Types."

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Will.—Mr. R. T. Ashby, Bierton, Bucks, veterinary surgeon, left £51,025 (net £50,956).

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Retirement of Mr. W. J. Williams, B.A., of Bayer Products, Ltd.—The large number of our readers who have appreciated his ever-courteous and well-informed attention to their requirements will learn with regret of the retirement, on July 1st next, of Mr. W. J. Williams, B.A., a graduate of the University of Wales, from the post of Manager of the Veterinary Department of Bayer Products Ltd., which he has filled so efficiently since the department was established in 1926. His qualities have been shown further, not only in his editorship of the Bayer publication "Veterinary Excerpts," but in the fact that under his managership, and through his initiative, the firm instituted a strictly ethical sales policy. We wish him and Mrs. Williams a long and happy retirement in the pleasant surroundings of Welwyn Garden City.

Mr. Williams will be succeeded by Mr G. F. Kershaw, M.R.C.V.S., formerly Assistant Veterinary Investigation Officer at the Veterinary Laboratory, Wye.

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R.C.V.S. OBITUARY

Bone, Thomas, O.B.E., Major R.A.V.C (retd.), Caravan Corner, Ringwood, Hants. Graduated London, July 12th, 1904. Died June 6th, 1951.

Dagg, William Dingle, Co. Kerry. Graduated Edinburgh, May 22nd, 1888. Died November 6th, 1950. (Notification just received.)

Nolans, James W., Birr, Offaly, Eire. Graduated Edinburgh, May 30th, 1891. Died February 8th, 1949. (Notification just received.)

Verney, Leonard Morris, D.S.O., F.R.C.V.S., Lt.-Col., R.A.V.C. (retd.). Graduated London, July 16th, 1900, Fellowship December 2nd, 1905. Died June 3rd, 1951, at Woodchester, Glos.

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Please "Return Empties."—We would request practitioners to oblige the commercial houses with which they deal by making as prompt a return as possible of all empty containers. It has been represented to us that omissions and delay in this matter are causing such a shortage of cases in some quarters that the fulfilment of orders is being held up.

The Passing of the Royal (Dick) Veterinary College

On May 10th the Royal Assent was given to the University of Edinburgh Royal (Dick) Veterinary College Confirmation Order Act. On June 1st the Board of Management of the college held its last meeting and the embodiment of the college within the University became effective. The college comes into the Faculty of Medicine and its future title is not yet determined, but it is decided that the name of the Founder will be perpetuated.

To mark the occasion there were a number of functions, and Friday, June 1st, was declared an academic holiday. On the afternoon of the previous day the Principal, Professor Mitchell, attended by his staff in academic dress, addressed the students on the history of the college and matters connected with the change. The same evening there was a re-union of old students of the college, arranged by the Alumnus Association, and about 150 attended, including Mr. J. H. White, of Liverpool, who was the oldest graduate present, having qualified from the college in 1893.

The programme started with an address by Professor Mitchell, who also read messages from many graduates unable to attend; these came from practically every part of the world. There followed an extremely good buffet supper, prepared by the staff of the college canteen, and then those who wished to see the expansion of the college since its move to Summerhall in 1916 were able to tour all the buildings. The evening closed with a thoroughly enjoyable impromptu entertainment, given by some of those present, and arranged by Messrs. S. Jennings and J. N. Ritchie, the final item being a positively last performance of "Cock Robin."

On the Friday afternoon a Garden Party was held for Old Students and their wives and other guests, at Bush House, the College's Field Station. The House is used as an Hostel for First Year Students, who, assisted by women students of other years and the staff of the Hostel, served an excellent tea. Since the weather could not have been kinder, nor the grounds looked more beautiful, everything seemed to have combined to assist a most delightful occasion which was much appreciated by all present.

In the evening the University gave a dinner in the Upper Library of the Old College; Sir Edward Appleton, Principal and Vice-Chancellor of the University, was in the chair and the guests included the Lord Provost of the City, members of the staff of the "Dick" and the various Faculties of the University, representatives of the Board of Management of the College, the Royal Highland and Agricultural Society, the Royal College of Veterinary Surgeons and the National Veterinary Medical Association. Following the Loyal Toast Professor Ritchie proposed "The City of Edinburgh," the Lord Provost replying. The Principal of the University proposed "The Royal (Dick) Veterinary College," the reply being made by Professor Crew, Chairman of the Board of Management; and finally Professor Mitchell proposed "The University of Edinburgh," to which Professor Sir Sydney Smith, Dean of the Faculty of Medicine, replied.

Also on the Friday evening a Dance was held in the McEwen Hall, for past and present students and other guests. This was very well attended, and neither the fact that black ties had been seen in the morning, nor the more austere events usually associated with the surroundings, seemed in any way to damp the traditional spirit of gaiety present when the "Dick," or its ghost, has an evening out.

H. F. H.

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The History of the College

In connection with the embodiment of the College within the University of Edinburgh, our readers will find of timely interest the following account of the history of the "Dick" College contributed by Mr. Thomas A. Joynt, M.A., Joint Deputy Secretary to the University of Edinburgh, to the June 1st issue of *The Scotsman*.

The history of the Royal (Dick) Veterinary College, which now becomes the University Veterinary School, can be sketched briefly in three stages of its development; the first, from its foundation in 1823 to the death of its founder in 1866; the second, from 1866 to 1906, during which it was governed by the Town Council as trustees appointed under the will of its founder; and the third from 1906 to April 1st, 1951, as an independent body incorporated in terms of the Edinburgh Corporation Act of 1906.

1823 to 1866

The founder of the college, William Dick, was a remarkable man even in an age of notable men. Born in 1793, he followed his father's calling as a farrier at a time when the value of veterinary knowledge was not yet appreciated in Scotland, and the farrier who shod horses also treated their ailments, but with little accurate knowledge of the cause and cure of animal disease. From an early age, however, William Dick was imbued with the desire that practitioners of the veterinary art should be men of definite training and accurate knowledge; and he set himself to provide what was so clearly lacking.

Towards this end he equipped himself by attending, among others, the lectures of Dr. John Barclay, the eminent anatomist of the Edinburgh Medical School, to whom Edinburgh is thus indirectly indebted for the establishment of its veterinary school by his former pupil, William Dick, and in 1817, at the London Veterinary College, which had been founded 26 years before, and where, after three months' study, he had confidence to apply for his diploma and—no fixed period of residence being necessary at that time—obtained it.

Thus equipped, he was enabled to achieve his ambition when the directors of the Highland Society of Edinburgh (now the Royal Highland and Agricultural Society), being imbued with the desirability of having in Edinburgh a professor or public lecturer in veterinary medicine, appointed him as lecturer, under their patronage. There was thus founded on Monday, November 24th, 1823, when he gave his first lecture, what has been called at different times the Highland Society's Veterinary School, the Edinburgh Veterinary School, the Dick's Veterinary College, and more recently, the Royal (Dick) Veterinary College—the title "Royal" having been assumed in common usage in 1874, and being included in the title of the college as incorporated in 1906.

During the first session the lectures were attended by 25 students, and the total income of the school was £42 from fees and £50 from the Highland Society. In the second session the number of students fell to ten, but the Highland Society persevered in their experiment. In the session 1825-6 the number of students had increased to 20 and the course of instruction was extended from two lectures weekly to three. In addition to the lectures, students of Mr. Dick's school were admitted to the classes of various medical lectures, and, in 1828, on the suggestion of Dr. Barclay, it was arranged by the Highland Society that the students should be given an examination at the end of the session, and provided with a certificate of their ability to practise the veterinary art. Within ten years of the opening of the school the number of students had increased to 50, and in 1838-9 had reached 101.

In the early years the new school was not without its difficulties. For many years there was dispute with the Royal College of Veterinary Surgeons concerning the validity of the certificates issued by the Highland Society. A more serious difficulty was that of accommodation.

From the beginning clinical instruction and instruction in shoeing was given in the premises of William Dick's house at 15, Clyde Street, and thither, too, were transferred in 1829 the courses of lectures, which had earlier been delivered in the Calton Convening Room. In 1831, when it was already felt that the accommodation of the school was scarcely fitted to its celebrity, the school premises apparently consisted of a forge, a stable used as a temporary hospital for sick animals, a museum which was small and did not permit of the proper display of the skeletons and other specimens, and the lecture-room "fitted up with rough deal planks, set upon rough props; the seats rising tier above tier, until your head touches the top of a very dark coloured ceiling." At last, in 1833, further and more permanent extensions of the Clyde Street premises were provided, at a cost of £2,500, the whole of which was borne by Dick himself, except for a grant from the Highland Society of £50 towards the equipment of the lecture-room: and in these buildings, as adapted and extended from time to time, the school remained until 1916.

William Dick's Achievement

By the time of his death on April 4th, 1866, in his 73rd year, William Dick had seen the school he had founded 43 years earlier grow from its very modest beginnings to one of the foremost centres of veterinary education in the world. Even as early as 1836 he was proud to note that the students of the college were drawn, not from Scotland alone, but from "all parts of Great Britain and Ireland, and also from America." The type of student had also changed. In the early years most were apprentice farriers, who would practise the veterinary art only incidentally; in later years they were young men who wished to qualify as veterinary surgeons, and to practise farriery not at all.

And yet, Dick was never a full-time teacher; he was a practising veterinary surgeon whose qualities as a consultant were valued throughout the length and breadth of the land. To cultivate education in the veterinary art was, however, his early and continuing ambition, and to it he devoted his life and much of his professional income. In the furtherance of this ambition he was sustained throughout his life by his devoted elder sister, Mary; and on her death, in 1883, she too bequeathed her estate to be used to the benefit of the college.

1866 to 1906

During the second period of its history the Edinburgh Veter-

inary College was governed by the City Corporation, as the trustees of William Dick. It was a period of varied fortunes in the life of the college. Some who had worked with William Dick soon died or reached the age of retiral and not all of their successors met with general approval; it was widely held also that the trustees intervened too often and too much in the day-to-day administration of the college. These feelings culminated in the resignation, in 1873, of the first principal, William Williams, who immediately started a new school of veterinary medicine in Gayfield House in competition with the earlier foundation.

The resignation of Williams was a grievous blow, for not only did he take with him the greater part of the students of the Dick Veterinary College, as it was then named to distinguish it from the new school, but, what was even more serious, his departure deprived those who remained of all clinical material for their instruction. Within 20 years, however, the college had recovered its former position under the Principalship from 1874 to 1894 of Thomas Walley; and its reputation was still further enhanced under his successor, John Robert Urquhart Dewar, who reigned as principal from 1895 to 1911.

1906 to 1951

Following negotiations over a number of years, the college was incorporated, in 1906, as the Royal (Dick) Veterinary College and its government transferred to an independent Board of Management representative of the City Corporation, the university, members of the veterinary profession practising in Scotland, the (Royal) Highland and Agricultural Society of Scotland, and the three Scottish Colleges of Agriculture. The original Board of Management also included Mr. Alexander Inglis Maccallum, who gifted to the college as incorporated the sum of £15,000 for the endowment of a chair in pathology, and a representative of the trustees of Mary Dick, who by agreement transferred to the college one moiety of the residue of her estate, amounting to £11,500 for the endowment of a Mary Dick Chair of Physiology; the other moiety of about £13,000 being paid to the University for the endowment of a Barclay and Goodsir Chair of Comparative Anatomy.

While the college had continued in the early part of Principal Dewar's term of office to make steady, if slow, progress, accommodation had for long been a barrier to further development, and the early years of the third period in its history were marked by the inception of a scheme for the removal of the college from Clyde Street to new and more commodious premises at Summerhall. The foundation stone of the new buildings was laid, on July 21st, 1914, by the Marquess of Linlithgow (now Chancellor of the University) and on April 15th, 1916, it proved possible, despite delays caused by the First World War, to transfer the last of the students from Clyde Street and finally to abandon what had been the home of the college for over 90 years.

Throughout this third period in its history the college has developed an ever closer association with the university. The first chairman of the newly constituted Board of Management was the Principal of the university, Sir William Turner, and all of his successors in the chair have been themselves representatives of the university on the Board of Management. In 1911 the university instituted the degrees of B.Sc. and D.Sc. in veterinary science, and in 1934 the college was affiliated with the university. As a result, teachers in the college have been closely associated with their university colleagues in teaching and examining for the university degrees in veterinary science. More recently the college has been associated with the university (and other bodies) in the development of the Edinburgh Centre of Rural Economy at Milton Bridge, where extensive provision has been made for a field station with hospital facilities for farm animals, to be used for instruction in veterinary hygiene, medicine, surgery, and obstetrics.

The University Veterinary School

Already before the Second World War, however, deficiencies were generally apparent in the provisions made for veterinary education in Great Britain, and the latest, and last, stage in the history of the Royal (Dick) Veterinary College had its origin in the recommendations of the Departmental Committee on Veterinary Education in Great Britain under the Chairmanship of Dr. Thomas Loveday. In two reports published in 1938 and 1944, the Loveday Committee stressed the necessity, in view of the increasing importance of the veterinary profession to the national economy, of providing still larger numbers of more adequately trained veterinary practitioners for service at home and in the colonies; and their recommendations were based on the principle that, if these ends were to be achieved, it was essential that veterinary colleges should become integral parts of their respective universities and that the universities should themselves become responsible for veterinary education and research and for the institution of degrees which could be accepted as registrable qualifications for membership of the Royal College of Veterinary Surgeons.

So far as Edinburgh is concerned, general effect has been given to these recommendations in the terms of the Order promoted by the Royal (Dick) Veterinary College and now confirmed. These provide for the dissolution of the college as a corporate body, for the transference of the college property to the University Court, and for the embodiment of the college within the university, as a centre of instruction and research. The University Court, for its part, has undertaken to institute, as soon as may be convenient, chairs in veterinary surgery, in veterinary medicine, and in veterinary hygiene and preventive medicine, and to institute within the Faculty of Medicine degrees in veterinary medicine and surgery. The court has undertaken also to associate the name of "Dick" with the University Veterinary School.

The dissolution of the Royal (Dick) Veterinary College will no doubt, and with good reason, be a matter of regret to many former students and to others who are familiar with its history and standing as a centre of veterinary education. The university authorities, for their part, are fully conscious of the traditions and reputation of the College and of the devoted loyalty given to it by all who have taught and studied there; and it will be their constant endeavour to maintain and, if possible, to enhance, within the University Veterinary School, the reputation, as a centre, of veterinary education and research, of the Edinburgh Veterinary College founded by William Dick, and for so long affectionately known to so many as "The Royal (Dick)."

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Veterinary Council of Ireland

At a recent meeting of the Veterinary Council of Ireland Mr. J. A. Flynn, M.R.C.V.S., Returning Officer, reported that the Ballot held in accordance with the provisions of the Veterinary Surgeons Act, 1931, revealed that the following members had been elected to hold office for a period of four years commencing May 31st, 1951, *viz.*, Mr. Sean O'Donovan, M.R.C.V.S., D.V.S.M., General Elected Member, and Professor A. F. O'Dea, M.SC., M.R.C.V.S., D.V.S.M., Limited Elected Member.

Mr. J. A. Flynn, M.R.C.V.S., retired from the Presidency of the Council and Professor M. J. Byrne, M.R.C.V.S., was unanimously elected as President.

Mr. J. A. Flynn, M.R.C.V.S., was elected Hon. Treasurer.

The President, Hon. Treasurer and Professor O'Dea were appointed members of the Standing and Penal Cases and Finance Committees.

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ROYAL ARMY VETERINARY CORPS OFFICERS' CLUB

Annual Dinner

The Annual Dinner of the Royal Army Veterinary Corps Officers' Club was held at Grosvenor House on Friday, June 8th. Brigadier A. G. Heveningham, O.B.E., Director Army Veterinary and Remount Services, presided and General Sir G. Ivor Thomas, K.C.B., K.B.E., D.S.O., M.C., Quarter-Master-General to the Forces, Sir Thomas Dalling, President, Royal College of Veterinary Surgeons, and Colonel R. G. Thompson, C.M.G., D.S.O., were the guests of the evening.

The following officers were also present—a total of 68 in all:—

Brigadiers G. A. Kelly, C.B.; C. A. Murray, C.B.E.; E. S. W. Peatt, O.B.E., and J. J. Plunkett, C.B.E.

Colonels G. Barnett, O.B.E., M.C.; H. E. Gibbs, D.S.O.; C. Holland, M.C.; J. J. Mills; W. L. Sinton, M.B.E.; G. F. Steevenson, O.B.E.; A. G. Todd, C.B.E., D.S.O.; C. H. S. Townsend, C.B.E., M.C.; E. G. Turner, D.S.O.; W. H. Walker, D.S.O., O.B.E., and P. F. Woodland.

Lieut.-Colonels V. A. Bartrum, O.B.E.; G. L. Beaumont; J. Bell; E. Brown, D.S.O.; J. Clabby, M.B.E.; R. C. Crowhurst, O.B.E.; B. C. M. Edmonds; C. P. Fisher; O. S. Fisher, O.B.E.; D. A. Green; J. Hickman; J. A. Langley; J. H. McGhee; A. G. Ralston; J. M. Ross, M.B.E.; W. M. Rouse; T. Sealy Green; D. F. G. Smith; D. I. C. Tennant; G. F. Watkins, and H. B. Williams, O.B.E.

Majors W. Blanshard; E. Brayley-Reynolds, O.B.E.; T. B. Crawford; J. J. Dunlop, M.C.; C. G. Farmer; A. V. Franklin, T.D.; J. Going; C. H. H. Jolliffe; T. Lishman; H. P. J. Murray; T. L. Shea; J. R. Steevenson, D.S.O.; J. R Stewart; H. Sumner; W. E. Turton; E. Wallace; J. H. Wilkins, and J. E. Wood, M.B.E.

Captains W. A. Gibbs; W. Harris; P. J. Mitchell; W. Procter; W. Richey, M.B.E., and D. P. White.

Lieutenants J. Cowie-Whitney; G. Singer; J. Spurry, and J. Stratton.

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More than 70 per cent. of Westmorland's herds are attested. This is the highest figure for any county in England.

FIRST KNOWN OUTBREAK OF RIFT VALLEY FEVER IN SOUTH AFRICA

In a message from Pretoria on May 3rd *The Times* Correspondent reported that a disease which has been taking toll of livestock in part of the Transvaal and the Orange Free State has been diagnosed by the Onderstepoort Veterinary Research Station as Rift Valley Fever. "It is believed to be the first time this disease has occurred in South Africa, and veterinary officers know of no treatment for it. The disease is carried by mosquitoes and they can transmit it to human beings, the symptoms being similar to influenza."

In response to our request for confirmation, Mr. J. P. de Wit, Scientific Liaison Officer of the South African Council for Scientific and Industrial Research, writes: "I can now confirm that Rift Valley Fever has definitely broken out in various areas in the Transvaal and Orange Free State. This is the first outbreak known to have occurred in the Union and is considered in a very serious light as the disease is not limited to livestock and human infections have also been reported."

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MEDICINE IN BRITAIN

Medicine in Britain in the festival year—its achievements and its future—is the theme of the scientific meetings organised jointly by the Royal Society of Medicine and the British Medical Association which were opened at 1, Wimpole Street, W., last week by Major-General the Earl of Athlone, Chancellor of the University of London.

Lord Athlone, who was accompanied by Princess Alice, Countess of Athlone, Chancellor of the University of the West Indies, addressing a large professional audience which included the Presidents of both organisations, Lord Webb-Johnson and Sir Henry Cohen, said it was right to remember that this country held no prouder record than its contribution to the advancement of medical science.

After the brief inaugural ceremony, the meeting devoted its attention to the first of a series of symposia on various branches of medicine to which this country has made notable contributions: Sir Henry Dale, O.M., F.R.S., presiding at the session, which was concerned with the peripheral nervous system. Over 120 leaders of British medicine will take part in the meetings, which will continue, with occasional breaks, until July 9th. As indicated in a recent issue, members of the veterinary profession and, indeed, all workers in the field of medicine and kindred sciences, whether or not members of the British Medical Association or Fellows of the Royal Society of Medicine, will be welcome.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

SWINE FEVER:

Durham.—Primrose Hill Piggeries, Winlaton Mill, Blaydon-on-Tyne (June 4th).

I. of Ely.—Hellrow Fen, Haddenham, Ely (June 4th).

Lanarks.—Drumsack Farm, Chryston, Glasgow (June 4th); Auchingree Nursery, Stepps (June 6th); Westerhill Farm, Bishopbriggs (June 7th).

Lancs.—Briscoe Lane Piggeries, Newton Heath, Manchester (June 4th); Ethel Street, Lightbourne Road, Morton (June 8th).

Lincs (Holland).—Five Bells Inn, Tydd-St-Mary, Wisbech; Holbeach Road, Fulney, Spalding (June 4th); The Bungalow, Whaplode, Spalding (June 7th).

Lincs (Lindsey).—Anchor Lane, Piggeries, Ingoldmells, Skegness (June 9th).

Norfolk.—Post Office Yard, Bawdeswell, Dereham (June 4th); Sundale Farm, Walpole Highway (June 9th).

Staffs.—Arbour Farm, Madeley, Crewe (June 8th).

Suffolk (E.).—Lowgate Street, Eye (Disease at Station Road, Eye) (June 5th).

Surrey.—13, Send Barns Lane, Send, Woking (June 4th); Fairview, Elmbrook Road, Cheam, Sutton (June 7th); Aldertons Farm, Send, Woking (June 9th).

Yorks (E.R.).—5, The Mount, North Newbald (June 4th); Easton's Yard, Hessle High Road, Hull; 11, Lascells Avenue, Withernsea (June 6th); The Cottage, Royal Oak, Filey (June 9th).

Yorks (N.R.).—Mallyan Hotel, Goathland (June 5th).

Yorks (W.R.).—Beckfield Farm, Fairburn, Leeds (June 6th).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

CAECAL COCCIDIOSIS: BREAKDOWN IN SULPHAMEZATHINE THERAPY

Sir,—In an article in *The Veterinary Record* of May 26th, 1951, Wilson* mentions failures in the use of sulphamezathine for the control of caecal coccidiosis and suggests that this may be due to underconsumption of drug offered at a level of 0·2 per cent. of the drinking water or to treatment being commenced too late in the life-cycle of the parasite. This is undoubtedly correct in some instances if only because flock treatment with sulphamezathine relies on delaying administration of the drug until the first appearance of haemorrhage in a group of chicks. Nevertheless, reports originally brought to my notice by J. D. Blaxland of this laboratory and later confirmed by the experiences of workers in other countries have shown clearly that much of the mortality which constitutes such a serious problem during outbreaks treated with sulphamezathine does not occur during the initial stages but actually after the termination of a period of therapy.

Breakdown in sulphamezathine therapy may occur not only as the result of the consumption of too little drug at too late a stage in the outbreak but, perhaps more often, as the result of overconsumption during the early developmental stages of the parasite.

The action of sulphamezathine on the various developmental stages of *Eimeria tenella* is selective. At low, but still therapeutically effective, levels only the second generation schizonts are inhibited, haemorrhage is checked and the life-cycle of the parasite is terminated. At higher concentrations earlier developmental stages may be inhibited, but such inhibition is only temporary, no resistance develops and the termination of therapy allows uninterrupted development of the parasite with consequent haemorrhage and possible mortality.

Under experimental conditions at Weybridge administration of the drug at as low a concentration as 0·5 per cent. in the food was associated with mortality which occurred on the fourth and fifth days after the termination of therapy.

It is clear that under field conditions the usually recommended concentrations of 0·2 per cent. of sodium sulphamezathine in the drinking water or 0·4 per cent. sulphamezathine in the food must be regarded as the maximum likely to produce a satisfactory therapeutic effect. It must be stressed that even such relatively low concentrations must as far as possible be limited to the latter part of the developmental cycle of the parasite. In practice this can probably be attained by interrupted therapy.—Yours faithfully, S. BRIAN KENDALL, Ministry of Agriculture and Fisheries, Veterinary Laboratory, New Haw, Weybridge, Surrey. *June 5th*, 1951.

. . . . .

Sir,—I find that in the penultimate sentence of the paragraph headed "Present Work" in my paper "Sulphaquinoxaline and Sulphamezathine in the Treatment of Experimentally Induced Caecal Coccidiosis of Chickens (*E. tenella*) and in a Natural Outbreak of Coccidiosis in Turkeys (*E. meleagridis and E. meleagrimitis*)" (*Vet. Rec.* **63.** 374) the figures 48 and 72 have been transposed. Reference to Table I will show that the sentence should read "Eight trials, using chicks of different ages and varying degrees of infection, were carried out; in six of them treatment was begun 72 hours after infection, in the others after 48 hours and 84 hours respectively."—Yours faithfully, J. E. WILSON, Ministry of Agriculture and Fisheries, Veterinary Laboratory, Eskgrove, Lasswade, Midlothian. *June 7th*, 1951.

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GUT OEDEMA

Sir,—The other day I was called in to see a Hereford heifer calf suffering from indigestion. It died the following day and the *post-mortem* examination revealed lesions identical with those seen in gut oedema in the pig. Although only about three months old its liver was fibrous and the large intestines were all massed together.—Yours faithfully, G. C. LANCASTER, Eastwick House, Evesham, Worcestershire. *June 3rd*, 1951.

* Wilson, J. E. *Vet. Rec.* **63.** 373-377.

N.V.M.A. CONGRESS, 1951

Revised Programme

Congress Meetings will be held in the Floral Hall, Winter Garden, Eastbourne

Sunday, September 23rd

EVENING: 8.0. Reception by Sussex and South-Eastern Counties Divisions.

Monday, September 24th

MORNING: 10.0. Civic Opening of Congress by His Worship the Mayor of Eastbourne.
10.30. Opening of Exhibition of Surgical Instruments, Drugs, etc., by the President, N.V.M.A.
11.30. Sectional Meetings.
AFTERNOON: 2.30. *Address*: "Control of Diseases of Livestock: a comparison of methods in different countries and their significance," by Sir Thomas Dalling, M.A., M.R.C.V.S., F.R.S.E., Chief Veterinary Officer, Ministry of Agriculture, followed by an address on the same subject by Dr. L. P. de Vries, Secretary, Animal Health Service, The Hague, Holland; and also by an American contributor.
EVENING: 8.30. Civic Reception, Dance and Cabaret, given by the Mayor and Mayoress of Eastbourne, at the Winter Garden, Devonshire Park, Eastbourne.

Tuesday, September 25th

MORNING: 9.30. *Paper*: "Johne's Disease, its Diagnosis and Control," by Dr. A. W. Taylor, M.R.C.V.S., of Compton. Opener: Mr. H. T. Matthews, B.V.SC., F.R.C.V.S., D.V.H.
AFTERNOON: 2.30. Small Animal Surgery, including X-rays, in the Gas Theatre, Eastbourne.
Ladies' Excursion.
EVENING: 8.30. Reception and Dance given by the President, N.V.M.A. at the Grand Hotel, Eastbourne.

Wednesday, September 26th

MORNING: 9.30. *Paper*: "The Application of Genetics to the Breeding of Farm Livestock," by Professor M. M. Cooper, Wye. Opener: Professor Wm. C. Miller, M.R.C.V.S., F.R.S.E.
12.0. Last meeting of Council 1950/51.
AFTERNOON: 2.30. Congress Photograph.
3.0. Annual General Meeting.
EVENING: 7.30 for 8.0. Annual Banquet, at the Grand Hotel.

Thursday, September 27th

MORNING: 9.30. *Paper*: "The Natural History of Canine Viral Hepatitis," by Mr. H. B. Parry, B.A., M.R.C.V.S., and Dr. N. M. Larin. Opener: Professor L. P. Pugh, B.Sc., F.R.C.V.S.
AFTERNOON: Free for Golf, Tennis, etc.
EVENING: 8.30. Ladies' Guild Dance, at the Grand Hotel, Eastbourne.

Friday, September 28th

MORNING: 9.30. *Paper*: "Parasitic Bronchitis in Cattle," by Dr. E. L. Taylor, M.R.C.V.S., D.V.H., of Weybridge. Opener: Mr. J. W. Bruford, M.R.C.V.S.
AFTERNOON: 2.30. Large-animal Surgery Demonstrations at the Wellcome Veterinary Research Station, Frant, Nr. Tunbridge Wells.

1. Films—shown by Mr. J. McLintock, M.R.C.V.S.
2. Rumenotomy—by Mr. K. Stuart, M.R.C.V.S.
3. Dishorning—various methods to be demonstrated.
4. Demonstration of Certain Methods for the Evaluation of Bull Semen—by Mr. J. L. Hancock, M.V.SC., M.R.C.V.S.

Ladies also invited to visit Frant, where special arrangements will be made for their entertainment.
EVENING: Dance given by the Grand Hotel.

Saturday, September 29th

MORNING: 10.0. Closing Meeting of the Congress, followed by
First Meeting of 1951/52 Council, N.V.M.A.

N.V.M.A. CONGRESS, 1951

September 23rd - 29th (inclusive)

List of Hotels in Eastbourne

The following is a list of recommended hotels in Eastbourne, giving particulars of their charges, etc. Members are advised to make reservations *as soon as possible* direct to the hotel of choice. Should a fuller list or any other information about Eastbourne be required, this can be obtained on application to the Publicity Department, Information Bureau, Eastbourne (Tel. : 4848).

The headquarters hotel for the period of the Congress and at which most of the evening functions will be held, is the Grand Hotel, Grand Parade, and block reservations of double and single rooms have been made there by the Association. These reservations will be held until the end of July *only*.*

Recommended Hotels in Eastbourne in the vicinity of the Conference Hall (the Winter Gardens) and the Headquarters Hote

Name and Address	*Inclusive*	† *Bed and breakfast*
Licensed		
Grand Hotel, Grand Parade	36/- to 55/- per day	29/- to 47/6
Cavendish, Grand P'de	35/- to 60/- per day	30/- to 35/-
Imperial, Devonshire Place	7 to 11 gns.	—
Hydro, Mount Road ...	8 to 12 gns.	—
Kenilworth Court, Wilmington Square ...	From 7 gns.	17/6
Sea View, Grand Parade	8 to 10 gns.	—
Beaulieu, Grand Parade	8½ to 10 gns.	—
Sandhurst, Grand P'de	From 25/- per day	—
Southdown, Howard Square	7 to 11 gns.	—
Neptune Court, Jevington Gardens ...	5 to 8½ gns.	15/6
Clarendon, Gildredge Road	7 to 8½ gns.	—
Sussex, Cornfield Terrace	9 gns.	17/6
Clifton, South Street ...	7 to 10 gns.	—
Hotels and Private Hotels		
Lansdowne, Grand Parade	7½ to 11 gns.	19/6
Haddon Hall, Devonshire Place	7 to 10 gns.	—
West Rocks, Grand Parade	6 to 10 gns.	—
Wish Tower, Grand Parade	7 to 10½ gns.	21/-
Queensborough, Grand Parade	7 to 10 gns.	15/6
Oban, Grand Parade ...	7 to 10 gns.	—
New Wilmington, Compton Street ...	7 to 9 gns.	18/6
Quendon, Carlisle Road	6 to 7½ gns.	—
Lynwood, Jevington Gardens	4½ to 7½ gns.	—
Lamont, Wilmington Square	7½ to 9 gns.	—
Caithness, Wilmington Square	7 to 9 gns.	—
South Cliff, South Cliff	6 to 8½ gns.	13/6
Shirley Court, Hardwick Road	6 to 8 gns.	—
Lathom House, Howard Square	6 to 8½ gns.	15/6
Stanley House, Howard Square	7 to 10 gns.	15/6
Whitehall, Howard Square	6 to 9 gns.	—
Ben Reay, Carlisle Road	6 to 8 gns.	—
Marden, Carlisle Road	6 to 7½ gns.	—
Medwyn Court, Carlisle Road	5½ to 6½ gns.	—
Southborough, Carlisle Road	5½ to 7 gns.	—
Alwyn, Jevington G'dns	6 to 7 gns.	—
Brooklyn, Jevington Gardens	7 to 8 gns.	—
Candar, Jevington G'dns	5 to 6½ gns.	—
The Chimes, Jevington Gardens	5½ to 6½ gns.	—
Elmscroft, Jevington Gardens	5 to 5½ gns.	—
Fairlands, Jevington Gardens	5 to 6½ gns.	—
Hazelhome, Jevington Gardens	From 5½ gns.	—
Jevington Guest House, Jevington Gardens ...	5 to 6 gns.	—
Kuvee, Jevington Gdns.	From 4½ gns.	—
Little Seeleys, Jevington Gardens ...	5 to 7 gns.	—
Morningside, Jevington Gardens	From 5½ gns.	—
Rosforde, Jevington Gardens	5 to 5½ gns.	—
Springhaven, Jevington Gardens	5 to 6½ gns.	—
Sussex Guest House, Jevington Gardens ...	4½ to 6 gns.	—
Tor View, Jevington Gardens	5½ to 6½ gns.	—
East Mullion, Lascelles Terrace	7 to 9 gns.	—
Mowbray, Lascelles Terrace	5 to 7 gns.	—
Revelstoke, Lascelles Terrace	6½ to 7½ gns.	—
South Lynn, Lascelles Terrace	5½ to 6½ gns.	—
Edenhurst, Wilmington Gardens	5½ to 7 gns.	12/6
Farrars, Wilmington Gardens	5 to 6½ gns.	—
Kingscourt, Wilmington Gardens ...	5 to 7 gns.	12/6
Park View, Wilmington Gardens	5 to 6½ gns.	—
Travancore, Wilmington Gardens ...	5 to 6½ gns.	—
Devonshire Court, Wilmington Square ...	5 to 7 gns.	—
Ellesmere, Wilmington Square	5 to 7 gns.	—
Faircroft, Wilmington Square	6 to 8 gns.	—
Southview, Wilmington Square	6 gns.	—
Country Accommodation		
Birling Gap Hotel, Birling Gap, East Dean	8 gns.	
Woodside, Hailsham	From 6 gns.	
Glyndley Manor, Hankham, Hailsham ...	From 8 gns.	
Chalk Farm, Willingdon, Hampden Park	From 6 gns.	
Martlets, Pevensey Park Road, Pevensey	5 to 5½ gns.	

* In booking at the Grand Hotel, if attendance at the N.V.M.A. Congress is mentioned, special terms will be allowed.

† The hotels indicated offer bed-and-breakfast accommodation at the terms quoted, but only for odd nights and not for full week bookings.